

Forest Insect Conditions on the
Dixie National Forest and in Bryce Canyon National Park
1963

The following report is an evaluation of current forest insect problems on the Dixie National Forest and in Bryce Canyon National Park in 1963. Since two of the forest insect problems--the mountain pine beetle and white fir needle miner--are actually single infestations and are common to both the Forest and Park, we have once again combined the evaluations into a single report. Material for this report was compiled from previous evaluation reports, from aerial survey maps and data, from special evaluation surveys, and from less intensive examinations of other insect problems on the Forest and Park this year.

The principal forest insect problem in 1963 was the mountain pine beetle in ponderosa pine on both the Forest and Park. Briefly, the mountain pine beetle has again killed several hundred ponderosa pine over a wide area with the heaviest concentration of mortality showing up on Whiteman Bench in the Forest and Park. Since the infested trees are so widely scattered and examinations indicate no significant increase in annual tree killing, control is not recommended. White fir needle miner populations are at a low level and may continue in that status next year. Mealybug populations persist on Engelmann spruce on the Aquarius Plateau but remain at an endemic level. A new defoliator of white fir was recorded on the Forest and Park for the first time this season.

Mountain pine beetle, *Dendroctonus ponderosae* Hopk.

The scattered pattern of beetle-killed ponderosa pine that has occurred in recent years over the Forest and in Bryce Canyon National Park was evident again during this season's aerial insect survey. Over most of the Forest this condition is endemic. Most beetle activity was concentrated in the East Fork of the Sevier River.

While some scattered faders resulting from 1967 insect attacks exist throughout the upper East Fork drainage, most killed trees are in Ingram Hollow, in King Creek area, and on Whiteman Bench. The pines in and near the King Creek Campground that were attacked this summer are as numerous as those infested in 1967. A similar ratio exists on Whiteman Bench. A planned timber sale on the Bench will result in removal of many susceptible trees. Although some broods will be destroyed in harvested trees, an overall population reduction in surrounding timber would probably not result from logging.

Farther to the east, Bryce Park is experiencing a much higher degree of ponderosa pine mortality. This portion of the infestation is continuing at a static level, with about as many trees expected to fade in 1968 as during this past season. For example, after sampling a representative portion of the infestation within the Park, Regional entomologists encountered 82 trees attacked in 1963 compared with 95 attacked in 1967. The situation

is nearly static here also. The mortality, however, will continue from year to year until such time as natural mortality factors or a suppression effort causes a gross decline in the beetle population trend. Even an endemic beetle population will result in occasional tree mortality.

On August 14 the broods resulting from 1967 attacks had either taken flight or were massed as adults ready for flight. At that time the foliage on the host trees had begun to fade. Trees attacked by the emerging broods were, in many cases, heavily engrossed in resin (pitched out) around the entrance holes, and others had egg galleries from three to four inches long. On October 15 entomologists noted that such early attacks displayed well-developed egg galleries, some partially developed larval galleries, and evidence of blue stain fungus in the xylem. Most trees, however, were more recently attacked. They contained partially developed egg galleries, eggs, and lacked outward evidence of blue stain. The pattern of infested trees was often quite scattered, but usually the recently killed trees were in proximity with those of the previous year.

The overall beetle situation in the East Fork-Bryce area continues but is not increasing significantly; we do not recommend control at this time. Some protection of individual high-value pines may be possible through the application of a preventive spray prior to beetle flight. Regional entomologists will provide additional information on request.

Western pine beetle, *Dendroctonus brevicomis*

In 1966 and 1967, beetle-killed ponderosa pine of various size classes were observed. Some removal cutting has been done in Leeks Creek, along Mill Creek, and in Pine Valley Recreation Area and has resulted in some control locally. The influence of beetles from nearby infested trees has caused continued tree mortality, particularly around Mill Creek.

In 1968 a few additional trees were attacked in the Pine Valley Recreation Area. Along Mill Creek a transect through the area revealed 45 recently attacked trees opposed to 63 attacked in 1967. The situation in the Pine Valley Mountain area is basically one of a few fairly isolated patches of dying ponderosa pine. In the patches, sawtimber and pole-size pines are being depleted. Since all of the pine occurs in rather isolated locations, effective control can be accomplished by destroying all brood in all trees, felling and burning, spraying, or by removing the infested timber. The management goal influenced the most by beetle-caused tree mortality is that of recreation.

Spruce beetle, *Dendroctonus obesus*

The spruce type in the area of the Aquarius Plateau and Boulder Mountain has, in past years, supported widespread spruce beetle outbreaks. In the 1920's a large portion of this area was subjected to heavy spruce mortality. Many snags still stand as a reminder of the epidemic.

The beetle's damage is difficult to detect because the life cycle is seldom completed in less than two years, and the killed trees characteristically shed their needles while still green. Fading tops, therefore, cannot reliably indicate an outbreak. As the insect population normally builds up in windfalls or logging slash, it is essential that timely slash disposal measures be taken.

In Coyote Hollow 3 MM bd. ft. of spruce logs were still on the ground and in decks by mid-August. Inasmuch as many of these logs were cut in September and October of 1967, the Forest is concerned with their early removal. To prevent a possible beetle buildup, the broods developing from 1968 adult attacks need to be destroyed in the milling process. The Forest is taking measures to prevent such buildup. The recommendations regarding such measures may be found in a September 16, 1968, memorandum (5230) to the Dixie Forest.

A large timber sale near Navajo Lake, in the Deer Valley drainage, was partially harvested this past season with a highly successful broadcast burn resulting in good removal of spruce slash. Due to exceptional burning conditions, many standing spruce along the cutting boundaries were scorched. It is possible that these scorched trees will remain moist enough to attract and nurture beetle populations in 1969. Regional entomologists will keep Forest personnel informed of this potential situation early next summer.

Another potential spruce beetle situation may exist in the upper reaches of Antimony Creek on the Circleville District. Here (S. 26, T. 32 S., R. 1. W. - see aerial survey map) approximately three to five acres of mixed spruce, subalpine fir, and aspen were completely windthrown. Since the blowdown did not occur until late summer or fall of 1968, it is unlikely that they were attacked by beetles. If they are left in place and not logged or burned, they will probably become infested in spring, 1969. If this happens, every effort should be made to have the salvage material removed in conjunction with the nearby existing logging activities. This situation, incidentally, was brought to the attention of Circleville District personnel by telephone following the aerial survey in October.

White fir needle miner, Epinotia meritana Hain.

The generally endemic needle miner populations of 1967 declined somewhat this year. Light defoliation occurred on 1,280 acres in 1967 and on only 520 acres in 1968. One exception is a buildup at the head of Coyote Hollow. The damage, however, is localized and defoliation is only light to moderate. Very limited defoliation to white fir was found throughout Cougar Hollow and in the fir stands adjacent to the southwestern end of the Park. No control is considered necessary.

A spruce mealybug, Puto sandini

Low numbers of mealybugs continue on the Barney Top and Griffin Top. Although actual damage is difficult to assess, there is very possibly a slow rate of attrition in infested spruce.

6/16/68

4

A white fir defoliator, Argyrotaenia dorsalana (Dyar)

Although no serious damage resulted, this defoliator was noted throughout the white fir stands of the East Fork of the Sevier River and in portions of the Park. Feeding was observed only on new foliage growth. The insects pupated in late June. Entomologists will continue to evaluate the occurrence of this moth next year. No control is necessary.

Bruce H. Baker
Bruce H. Baker, Entomologist.